Amendments to the Specification:

Please replace the paragraph, beginning at page 11, line 6, with the following rewritten paragraph:

Fig. 41 is a cross sectional view of a seat assembled with the flexible PTC heating element in the ~~fortieth~~ forty-first exemplary embodiment of the present invention.

Please replace the paragraph, beginning at page 13, line 17, with the following rewritten paragraph:

When a PTC heating element is prepared in the same manner as in this embodiment by using a polyester film with no liquid impregnating property and subjected to the evaluation as described above, the resistance value increases due to disconnection of the comb type electrode at about 300,000 cycles. On the contrary, the PTC heating element of this embodiment using substrate 1 having the liquid impregnating property can satisfy the aimed specification. Number of vibration cycles till the change of the resistance value reaches 10% is 1,300,000 cycles. A PTC heating element using a substrate including short fibers further improved with impregnation retainability is intact till 3,000,000 cycles of vibrations. As described above, a substrate to which the conductive ~~past~~ paste and the PTC ink are impregnated more easily has more excellent vibration durability.

Please replace the paragraph, beginning at page 14, line 7, with the following rewritten paragraph:

The polyurethane hot melting film constituting substrate 1 has a melting point lower than the drying temperature of the conductive paste forming electrode 2 and the PTC ink forming resistor 3. Specifically, the drying temperature of the conductive ~~past~~ paste or the PTC ink is 150°C, while the melting point of the hot melting film is about 120°C. The conductive ~~past~~ paste and the PTC ink have fluidity at a bonding temperature of the hot melting film and can be impregnated into substrate 1.

Please replace the paragraph, beginning at page 26, line 11, with the following rewritten paragraph:

Fig. 11A is a partially cut-away plan view showing a PTC heating element according to this embodiment and Fig. 11B is a cross sectional view at position 11B-11B. Flexible substrate (hereinafter as substrate) 1 is impregnated with a liquid such as an ink. For example, it is a polyester non-woven fabric including long fibers formed with openings 32. Resistors 3 are disposed not entirely but divisionally and each opening 32 is formed between resistors 3. Openings 32 can be prepared by previously punching out substrate 1. Resistor 3 is not disposed in opening 32 and flexibility is provided to the PTC heating element with openings 32 being as a bent portion. When such a PTC heating element is applied to a seat, feeling of attachment upon sitting and flexibility are improved. By blowing of cold blow from openings 32 in combination with a ~~Pertier~~ Peltier device or the like, ~~conformability~~ confortability is enhanced.

Please replace the paragraph, beginning at page 33, line 8, with the following rewritten paragraph:

Figs 15A and B are, respectively, a partially cut-away plan view and a cross sectional view showing a PTC heating element according to a seventeenth exemplary embodiment. Flexible mesh substrate (hereinafter as substrate) 51 has deformable ~~opening~~openings, and an ink impregnating property. Substrate 51 consists of a material such as cotton or polyester in a mesh-like shape. Flexible support substrate (hereinafter as substrate) 52 has an ink impermeable property and bonded to substrate 51 by way of thermal fusion or adhesion. Substrate 52 has a function as a barrier material not permeating the ink and a function forming a skeleton of the PTC heating element. Substrate 51 and substrate 52 form a flexible substrate. Substrate 52 is formed by applying an ink-impermeable treatment by impregnating, for example, resin latex to a spun lace (non-woven fabric), a stretch material or foamed body such as foamed polyurethane. The spun lace has a small weight per unit area and has such a constitution that, even when an ink is impregnated, the ink is not secured in a plane-like shape but impregnated and retained along entanglements of fibers. The stretch material is formed by impregnating rubber latex into the spun

lace and then squeezing and drying the same. Such substrate 51 and substrate 52 are combined, on which comb-like electrodes (hereinafter as electrodes) 2, PTC resistor (hereinafter as resistor) 3, and flexible cover material (hereinafter as cover material) 4 are constituted. Electrodes 2 and resistor 3 are identical with those in the first exemplary embodiment. Cover material 4 includes, like in the eighth exemplary embodiment, dried films such as of resin latex for example.

Please replace the paragraph, beginning at page 35, line 11, with the following rewritten paragraph:

The ink impermeable layer is formed by the spun lace non-woven fabric or the resin foam in which the ink is immersed and retained in a three dimensional manner as substrate 52. With the constitution as described above, the conductive paste and the PTC ink having passed through substrate 51 is retained not in a ~~planer~~ planar shape but being dispersed in a three dimensional manner. With the constitution as described above, the affection of the PTC ink impregnated and retained in substrate 52 on the PTC characteristics can be minimized and the flexibility can be maintained.

Please replace the paragraph, beginning at page 36, line 3, with the following rewritten paragraph:

In a case of applying a PTC heating element to a car seat, while elongation is required for the lateral direction of the seat, elongation is not required in the direction of the depth. This is because ~~laser~~ leather or fabric itself as the surface skin material for the seat has such a characteristic and, unless a PTC heating element has more flexibility, it causes the sense of discomfort such as stiffness upon sitting. Since the flexible PTC heating element of this embodiment uses substrate 51 having the property as described above, it can satisfy the condition. The shape for the opening is not limited to a square shape but may be any other shape such as a circular or elliptic shape. Among them, the shape of the opening is preferably a rhombic shape. With the constitution as described above, since apparent elongation is given by the deformation of the rhombic mesh with least stress on electrodes 2 and resistor 3 against deformation by elongation, stability for the resistance value is improved.

Please replace the paragraph, beginning at page 36, line 20, with the following rewritten paragraph:

In this case, the paste and the ink for electrodes 2 and resistor 3 are deposited in a state being entangled to the periphery and the joining points of slackened fibers. Accordingly, joining between the materials constituting electrodes 2 or resistor 3 deposited to the fibers can be maintained easily upon deformation of the openings. That is, substrate 51 constituted with the spun lace non-woven fabric including, for example, cotton or mixed spun of cotton and polyester has gaps and slacks between the fibers. Electrodes 2 and resistor 3 printed and disposed there form printed matters not in a film-like shape but in a state with gaps or slacks. In a case where deformation by elongation exerts, electrodes 2 and resistor 3 per se do not elongate together with the mesh constitution but they elongate by deformation thereof.

Please replace the paragraph, beginning at page 39, line 23, with the following rewritten paragraph:

Fig. 17 is a cross sectional view for a PTC heating element according to a nineteenth exemplary embodiment of the present invention. The ~~seventeenth~~ nineteenth exemplary embodiment is different from Fig. 15B of the seventeenth exemplary embodiment in that elongation control member 57 for controlling at least the elongation (longitudinal direction) of main electrodes of electrodes 2 is disposed below flexible support substrate 52. Elongation control member 57 is, for example, a knit-like resin net which functions as an elongation control portion. The main electrode for electrode 2 supplies a predetermined potential to branch electrodes and, in case where the potential for the portion changes, it is difficult to attain a uniform distribution of heat generation for the PTC heating element. It is necessary to minimize the change for the resistance value due to deformation by elongation of the main electrode. In a case where elongation control member 57 is constituted with a knit-like resin net, elongation in the longitudinal and the lateral directions is controlled depending on the way of knitting. This restricts elongation of the main electrode to 2% in the longitudinal direction and elongation of the branch electrode to 5% in the longitudinal direction, the resistance value is stabilized by using

substrate 51, and insufficiency of the strength of substrate 51 is compensated to obtain a flexible PTC heating element which is flexible and has strong breaking strength. The values for the elongation as described above are practical guaranteed values of a leather in the longitudinal and the lateral directions and practical flexibility is ensured so long as the values are satisfied. Stitching fabrication of stitching threads may also be applied by replacing elongation control member 57 with a knit-like resin net.

Please replace the paragraph, beginning at page 44, line 25, with the following rewritten paragraph:

Fig. 21 is a partially cut-away plan view of a PTC heating element according to a twenty-third exemplary embodiment of the present invention. For conductive thin material 71 of the PTC heating element according to this embodiment, an expanded metal of copper or nickel plated copper is used. Thin material 71 has through ~~hole~~ holes 72. Other basic constitutions than those described above are identical with those in the twenty-second exemplary embodiment.

Please replace the paragraph, beginning at page 45, line 8, with the following rewritten paragraph:

With the constitution as described above, conductive adhesive 68 is present in through ~~hole~~ holes 72. Adhesive 68 and thin material 71 are thus integrated to have larger contact area. Therefore, the electrical connection is firm and the mechanical strength is improved.

Please replace the paragraph, beginning at page 46, line 15, with the following rewritten paragraph:

Figs. 23A, B are, respectively, a partially cut-away plan view and a cross sectional view showing a PTC heating element according to a twenty-fifth exemplary embodiment. In the drawings, a through hole penetrating from the surface of electrode 2 through flexible mesh substrate 51 and flexible support substrate (hereinafter as substrate) 73 is formed. Then, electrode 2 and thin material ~~63~~ 67

are electrically connected through the through hole by squeezing with grommet 74. Substrate 73 is composed of a stretched material and has retractility. Other constitutions are identical with those in the twenty-second exemplary embodiment.

Please replace the paragraph, beginning at page 48, line 5, with the following rewritten paragraph:

Figs. 25A, B are, respectively, a partially cut-away plan view and a cross sectional view showing a PTC heating element according to a twenty-seventh exemplary embodiment. The PTC heating element according to this embodiment has a structure in which elongation control member (hereinafter as member) 86 is disposed to the PTC heating element according to the seventeenth exemplary embodiment. Member 86 is joined to flexible mesh substrate (hereinafter as substrate) 51, for example, by adhesives to control elongation of substrate 51. It includes, for example, knit mesh 88. Flexible barrier material (hereinafter as barrier material) 82 is used instead of flexible support substrate 52. Barrier material 82 is joined to substrate 51 by thermal fusion or adhesion and impregnated and retained in the form of a film to substrate 51. In this embodiment, substrate 51 functions as a skeleton of the PTC heating element. Substrate 51 and substrate 82 form a flexible substrate. Barrier material 82 may be formed as a hot melting film to serve also as member ~~87~~86, and knit mesh 88 and substrate 51 may be thermally fused. Since other constitutions are identical with those in the seventeenth exemplary embodiment, descriptions are to be omitted.

Please replace the paragraph, beginning at page 50, line 2, with the following rewritten paragraph:

Barrier material ~~22~~ 82 is not restricted to the hot melting film. Latexes of polyester resin, polyacryl resin, acrylonitrile butadiene rubber, polyester urethane resin, styrene butadiene rubber and polyurethane resin as the resin coating material may also be used alone or in combination. The latexes have flexibility and give no undesired effects on the PTC characteristic. They can control the ink impregnating property of substrate 51 more reliably. The hot melting film and the resin coating material may be used together.

Please replace the paragraph, beginning at page 55, line 20, with the following rewritten paragraph:

With the constitution as described above, substrate 51, electrodes 2 and resistor 3 can be constituted integrally to obtain a heating element capable of attaining apparent elongation by deformation of substrate 51 and excellent in the stability of the resistance value for deformation by elongation. A novel heating element can be provided by leaving openings 51A in substrate 51 and using openings ~~51~~51A, for example, as through holes for passing air.

Please replace the paragraph, beginning at page 59, line 12, with the following rewritten paragraph:

~~Fig. 31A~~Figs. 30A, B are, respectively, a partially cut-away plan view and a cross sectional view of a PTC heating element according to a thirty-first exemplary embodiment.

Please replace the paragraph, beginning at page 65, line 10, with the following rewritten paragraph:

Figs. 34A, B are, respectively, a partially cut-away plan view and a cross sectional view at position 34B-34B for a flexible PTC heating element according to a thirty-fourth exemplary embodiment. Flexible substrate (hereinafter as substrate) 102 has ink impermeability. Substrate 102 is formed by extruding film 104 consisting of a urethane resin (hereinafter as film) through a T-die and thermally fusing it simultaneously with fiber substrate (hereinafter as substrate) 103 including a non-woven fabric such as a spun lace or spun bond. The material for substrate 103 is polyester. A pair of comb electrodes (hereinafter as electrodes) 2 formed by printing and drying a conductive paste such as a silver paste are provided on the surface of film 104 of substrate 102. Each of electrodes 2 includes main electrode 2A and branch electrodes 2B and arranged such that the longitudinal direction of main electrode 2A is aligned with the roll take-up direction for substrate 103. PTC resistor (hereinafter as resistor) 3 is formed on branch electrodes 2B by printing and drying PTC ink. Flexible cover material (hereinafter as cover material) 116 covers

electrodes 2 and resistor 3. Cover material 116 is formed by thermally fusing hot melting resin film (hereinafter as film) 114 and fiber substrate (hereinafter as substrate) 115 such as a knit having openings. Cover material 116 is thermally fused with electrodes 2, resistor 3 and film 104 of substrate 102 via film 114. That is, electrodes 2 and resistor 3 are completely covered at the periphery thereof. Since substrate 115 included in cover material 116 includes, for example, a knit having openings, its surface has unevenness. Accordingly, the surface of electrodes 2 and resistor ~~2~~ 3 in contact with substrate 115 is transferred with unevenness of substrate 115 upon thermal fusion.

Please replace the paragraph, beginning at page 71, line 8, with the following rewritten paragraph:

As substrate 102, substrate 103 bonded with film 104 is used. As cover material 116, substrate 115 in which hot melting film 114 thermally fusing with substrate 103 or film ~~114~~ 104 is bonded is used. With such a constitution, film 104 prevents through passage of the ink during printing and enhances the strength of substrate 103, 115. Electrodes 2 and resistor 3 between film 104 and film 115 are shielded and sealed from atmospheric air. Accordingly, a PTC heating element of long lasting high reliability is obtained. Specifically, as the material for film 104, one of urethane, olefin ~~or~~ and styrene thermoplastic elastomers or a mixture thereof is used. Since such elastomer elongates easily, it provides the PTC heating element with the flexibility. It is preferably to blend adhesive resin with the elastomer or to laminate the elastomer and adhesive resin. This enhances the adhesion between electrodes 2, resistor 3 and substrate 102 to improve the vibration durability. Olefin resin is used as the material for film 114. The adhesive resin is, for example, polyethylene introduced with a polar group such as a carboxyl group or ether group in the molecule skeleton. Specifically, this is maleic anhydride modified or acrylic acid modified polyethylene or thermoplastic elastomer modified in the same manner.

Please replace the paragraph, beginning at page 81, line 14, with the following rewritten paragraph:

The flexible resin A is mainly a resin having functional groups and, specifically, it includes, for example, copolyester, maleic anhydride modified polyethylene, EVA (~~ethyl~~ ethylene vinyl acetate copolymer) and EEA (ethylene ethyl methacrylate copolymer).

Please replace the paragraph, beginning at page 83, line 17, with the following rewritten paragraph:

As shown in Fig. 41, humidity removing blower (hereinafter as blower) 150 and moisture removing portion 151 may be disposed to seat main body (hereinafter as seat) 154. Blower 150 includes, for example, a sirocco fan. Moisture removing portion 151 has an absorbent material such as, for example, zeolite, silica gel, titanium silicate or activated alumina. As a ~~heat~~ heater 158 in this case, those having through holes as described in the thirteenth to fifteenth exemplary embodiments or the twenty-first exemplary embodiment are applied. Moisture removing portion 151 removes moisture in air sent by blower 150. Blowing channel 153 introduces moisture-removed air into pad portion 155 made of a urethane foam resin or the like of seat 154. Surface skin 156 covers pad portion 155 and is formed with blowing holes (hereinafter as holes) 157 for jetting out dehumidified air supplied from blowing channel 153.

Please replace the paragraph, beginning at page 85, line 7, with the following rewritten paragraph:

Blowing channel ~~13~~ 153 is preferably constituted with a nonhygroscopic material such as a urethane resin. With the constitution, high temperature and low humidity air generated from the moisture removing portion blows to a human body with no moisture absorption in the blowing channel. Accordingly, sweats on the body surface are evaporated to deprive the heat of evaporation thereby giving feeling of cooling to a human body and also increasing the effect of preventing feel of steaming.